

Richard R. Rediske, Ph.D.
Professor, Water Resources
Annis Water Resources Institute
Grand Valley State University
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Academic Preparation:

Citizen Planner Certificate, Michigan State University, 2003
Ph.D., Environmental Health Sciences, University of Michigan, 1986
M.S., Water Resources Science, University of Michigan, 1975
B.S., Biology, Bowling Green State University, 1974

Professional Appointments:

1994 - Professor and Senior Research Scientist, Annis Water Resources Institute
Research Areas: Environmental chemistry and toxicology, environmental monitoring and assessment, cyanobacteria toxins, contaminants in fish and benthic invertebrates, point of use water treatment systems
1992 - 1994. Senior Vice President, Environmental Services: Earth Tech, Grand Rapids, MI
1982 - 1991. Director of Laboratory and Environmental Science Services: WW Engineering and Science, Grand Rapids, MI.
1980 - 1982. Chief Organic Research Chemist: Muskegon County Wastewater Management System
1978 - 1982. Organic Laboratory Manager: Environmental Research Group

Professional Service

Research Fellow. Cooperative Institute for Limnological and Environmental Research.
University of Michigan
Visiting Scientist. Great Lakes Environmental Research Laboratory. Ann Arbor, MI
Non-Resident Lecturer. University of Michigan School of Public Health
Adjunct Instructor. University of Michigan School of Natural Resources and the Environment
Chairman West Michigan American Chemical Society
Muskegon Environmental Coordinating Council, Lifetime Achievement Award
Governor's Environmental Monitoring Advisory Committee. State of Michigan
Michigan Department of Environmental Quality Analytical Detection Limit Review Board
Michigan Department of Environmental Quality Rule 57 Development and Advisory Board
Michigan Environmental Advisory Committee
Michigan Green Chemistry Council
Federal Advisory Committee on Detection and Quantitation
Reviewer: Aquatic Ecosystems Health and Management, Journal of Great Lakes Research,
Toxins, Environmental Science and Technology, Harmful Algae, and Society of
Environmental Chemistry and Toxicology

University Service:

CLAS Personnel Committee, Vice Chair (2011-present)
GVSU Faculty Development Committee (2010-2011)
GVSU Safety Committee (2005-2011)
Science Olympiad (Regional and National Event Supervisor)
Unit and University Search Committees (5)
AWRI Equipment Committee
Café Connect Student Life Club Faculty Sponsor
Student Scholarship Competition Interviewer
Student Scholarship Day Mentor

Community Service:

Chairman, Allendale Township Planning Commission (1995-2010)
Scoutmaster and Merit Badge Councilor, Boy Scouts of America Gerald Ford Council
Muskegon Lake Watershed Partnership (2000 – present)
White Lake Public Advisory Council (2000-present)
Allendale Schools Science and Technology Committee
Allendale Science Olympiad Event Coach for Middle and High School
Mel Trotter Ministries

Honors

1995 West Michigan American Chemical Society. Distinguished Service Award
2000 GVSU Science Olympiad 5 Year Service Award
2004 Michigan Public Health Partnership Award
2006 State of the Lakes Ecosystem Conference Success Story Award
2007 GVSU Administrative/Professional Achievement Award
2008 Boy Scouts of America. Distinguished Service Award

Education and Teaching

Graduate courses in Aquatic Toxicology and Water Pollution Biology (BIO 580)
Undergraduate courses in Great Lakes and Water Resources (BIO 107), Watershed and Wetland Management (NRM 452), Industrial Chemistry (CHM 311), Green Chemistry (CHM 111)
Major advisor: Elaine Sterrett Isely (2005), Janel Hagar (2008), Jessica Higgins (2009), and Andrew Sisson 2012.
Committee member: Laurie Beth Nedervelde (2008)
Major advisor: Elizabeth Hanna, Sarah Stamann, and Brian Zuber MS Candidates
Committee member: James Smit and Steve Snyder MS Candidates
Committee member: Whitney Nelson (2012) and Angela Defore (2013)
Committee member: David Janetski Ph.D. Notre Dame (2011)
Guest lecturer: CHM 180, BIO 680, BIO 362, GEO 445, NRM 330, and SOC 304
University of Michigan Summer Great Lakes Ecology Class 2005 and 2006

Recent Publications (Since 2007):

- Madenjian, C.P., N.S. Johnson, T.R. Binder, **R.R. Rediske**, and J.P. O'Keefe. 2013. Polychlorinated Biphenyl concentrations and activity of Sea Lamprey *Petromyzon marinus* vary by sex. *Archives of Environmental Contamination and Toxicology*. 65(4): 693-703.
- Chu X, Nelis J*, and **R Rediske** 2013. A Preliminary Study on the Effects of Surface Microtopography on Tracer Transport in a Coupled Overland and Unsaturated Flow System. *Journal of Hydrologic Engineering* 18 (10), 1241–1249.
- Sisson, A.J.*, P.J. Wampler, **R.R. Rediske**, McNair, J.N., D.J. Frobish 2013. Long-Term Field Performance of Biosand Filters in the Artibonite Valley, Haiti. *American Society of Tropical Medicine and Hygiene* 88 (5), 862-867.
- Madenjian C.P., M.A. Stapanian, **R.R. Rediske**, and J.P. O'Keefe. 2013. Sex difference in polychlorinated biphenyl concentrations of burbot *Lota lota* from Lake Erie. *Archives of Environmental Contamination and Toxicology* 65(2): 300-308.
- Stapanian, M.A., C.P. Madenjian, **R.R. Rediske**, and J.P. O'Keefe. 2013. Sexual difference in PCB congener distributions of burbot (*Lota lota*) from Lake Erie. *Chemosphere*. 93(8) 1615–1623.
- Sisson, A.J., P.J. Peter J. Wampler, **R.R. Rediske** and A.R. Molla. 2013. An assessment of long term biosand filter use and sustainability in the Artibonite Valley near Deschapelles, Haiti. *Journal of Water, Sanitation, and Hygiene for Development*. 3(1): 51-60.
- Wampler, P., **R. Rediske**, and A. Molla. 2013. Using ArcMap, Google Earth, and Global Positioning Systems to select and locate random households in rural Haiti. *International Journal of Health Geographics* 12(3). DOI: 10.1186/1476-072X-12-3
- Madenjian. C.P., D.R. Solomon, **R.R.. Rediske**, D.J. Jude, and J. P. O'Keefe 2012. Net trophic transfer efficiencies of polychlorinated biphenyl congeners to lake trout (*Salvelinus namaycush*) from its prey. *Environmental Toxicology and Chemistry*. 31 (12):2821-2827.
- Janetsky, D.T., D.T. Chaloner, A.H. Moerke, **R.R. Rediske**, J.P. O'Keefe, and G.A. Lamberti. 2012. Spawning Pacific salmon elevate organic pollutants in resident fish of Great Lakes tributaries. *Environmental Science and Technology*. 46 (15): 8035–8043.
- Madenjian. C.P., A.W. Trombka**, **R.R.. Rediske**, D.J. Jude, and J. P. O'Keefe 2012. Sex Difference in Polybrominated Diphenyl Ether Concentrations of Walleyes. *Journal of Great Lakes Research*. 28(1): 167–175.
- Xie, L., **R. Rediske**, Y. Hong., J. O'Keefe, N. D. Gillett, J. Dyble, and A. Steinman 2012. The role of environmental parameters in the structure of phytoplankton assemblages and cyanobacteria toxins in two hypereutrophic lakes. *Hydrobiologia*. 691(1) (2012): 255-268.
- Chu, X. and **R. Rediske** 2012. Modeling Metal and Sediment Transport in a Stream-Wetland System. *Journal of Environmental Engineering*. 138(2): 142-163.
- Xie, L., J. Hagar*, **R. Rediske**, J. O'Keefe, J. Dyble, and A. Steinman 2011. The influence of environmental conditions and hydrologic connectivity on cyanobacteria assemblages in two drowned river mouth lakes. *Journal of Great Lakes Research* 37(3): 470-479.
- MacDonald, N.W. D. W. Mays, **R. R. Rediske**, and C. R. Ruetz III. 2011. Environmental variation, fish community composition, and brown trout survival in the Pigeon River, Ottawa County, Michigan. *Michigan Academician* XL(2):135-168.

- Jude, D.J. **R. Rediske**, J. O'Keefe, S. Hensler, J. Giesy. 2010. PCB concentrations in walleyes and their prey from the Saginaw River, Lake Huron: A comparison between 1990 and 2007. *Journal of Great Lakes Research*. 36(2): 267-276.
- Nold, C., J., Pangborn, H. Zajack, S. Kendall, **R. Rediske**, and B. Biddanda. 2010. Benthic Bacterial Diversity in Submerged Sinkhole Ecosystems. *Applied and Environmental Microbiology*. 76(1) 347-351.
- Wiley, M.J, D.W. Hyndman, B.C. Pijanowski, A.D. Kendall, C. Riseng, E.S. Rutherford, S.T. Cheng, M.L. Carlson, J.A.Tyler, R.J. Stevenson, P.J. Steen, P.L. Richards, P.W. Seelbach, J.M. Koches, and **R.R. Rediske**. 2010. A multi-modeling approach to evaluating climate and land use change impacts in a Great Lakes River Basin. *Hydrobiologia* 657:243-262.
- Millie, D. F., G. Fahnenstiel, J. Dyble, R. Pigg, **R. Rediske**, D. Klarer, P. Tester. 2009. Late-summer phytoplankton in western Lake Erie (Laurentian Great Lakes): bloom distributions, toxicity, and environmental influences. *Aquatic Ecology* 43:915-934.
- Cooper*, M., **R. Rediske**, D. Uzarski, and T. Burton. 2009. Sediment contamination and faunal communities in two subwatersheds of Mona Lake, Michigan. *Journal of Environmental Quality*. 38:1255-1265
- Madenjian, C., D. Jude, **R. Rediske**, and J. O'Keefe, and G. Noguchi. 2009. Gender Difference in Walleye PCB Concentration Persists Following Remedial Dredging. *Journal of Great Lakes Research*. 35(3):347-352.
- Biddanda, B., A. Steinman, L. Nemeth, **R. Rediske**, Y. Hong, and S. Kendall. 2008. Nutrient bioassays of plankton biomass and metabolism in an urbanized drowned river-mouth lake (Mona Lake, Michigan) in the Great Lakes basin. *Journal of Freshwater Ecology* 23:41-53.
- MacDonald , N. **R. Rediske**, B. Scull, and D. Wierzebecki. 2008. Landfill cover soil, soil solution, and vegetation responses to municipal landfill leachate applications. *Journal of Environmental Quality*. 37:1974-1985
- Madenjian, C., D. O'Connor, **R. Rediske**, and J. O'Keefe. 2008. Net trophic transfer efficiencies of polychlorinated biphenyl congeners to lake whitefish (*Coregonus clupeaformis*) from their food. *Environmental Toxicology and Chemistry* 27(3):631-636.
- Steinman, A., M. Ogdahl, **R. Rediske**, C. Ruetz III, B. Biddanda, and L. Nemeth. 2008. Current status and trends in Muskegon Lake, Michigan. *Journal of Great Lakes Research* 34: 169-188.
- Fahnenstiel, G., D. Millie, J. Dyble, R. Litaker, P. Tester, M. McCormick, **R. Rediske**, and D. Klarer. 2008. Microcystin concentrations and cell quotas in Saginaw Bay, Lake Huron. *Aquatic Ecosystems Health and Management*. 11(2):190 – 195.
- Millie, D., G. Fahnenstiel, J. Dyble, R. Litaker, P. Tester, M. McCormick, **R. Rediske**, and D. Klarer. 2008. Influence of environmental conditions on summer cyanobacterial abundance in Saginaw Bay, Lake Huron. *Aquatic Ecosystems Health and Management*. 11(2):196-205.
- Steinman, A., B. Biddanda, X. Chu, K. Thompson, and **R. Rediske**. 2007. Environmental analysis and conceptual model of groundwater in Mecosta County, Michigan. *Environmental Monitoring and Assessment* 134: 177-189.
- * Graduate Student. **Undergraduate Student

Recent Grants (\$4.2 Million since 1996):

- 2013 **\$5,000** Tyler Creek Phase II 319 Monitoring (CoPI).
\$12,000 Public Health Muskegon County Beach Monitoring (PI).
- 2012 **\$10,000** NOAA/U of M: Oceans and Human Health Program. Cyanotoxins in Lake Erie (CoPI).
\$245,000 Great Lakes Fisheries Trust. Predicting the impact of contaminants delivered by Pacific salmon on fish communities in Great Lakes tributaries . (Notre Dame Lead; CoPI).
\$5,000 Flat River 319 Monitoring (CoPI).
\$6,000 Public Health Muskegon County Beach Monitoring (PI).
- 2011 **\$10,000** Muskegon Health Departments for Beach and Stormwater Monitoring (PI).
\$15,000 NOAA/U of M: Oceans and Human Health Program. Cyanotoxins in Lake Erie (CoPI).
\$50,000 Timberland RC&D. Tyler Creek 319 *E. coli* Assessment. (CoPI).
\$123,000 WMSRD/NOAA. Impact of Mill Debris on Benthic Invertebrates in Muskegon Lake (CoPI).
\$6,400 USGS Analysis of Burbot Samples for PCB Congeners (PI).
\$2,400 MDEQ Sediment Toxicity Testing in White Lake (PI).
\$21,000 MDNRE. Fish Contaminant Assessment of White, Muskegon, and Pentwater Lake (PI).
- 2010 **\$13,000** Muskegon and District 10 Health Departments for Beach Monitoring (PI).
\$15,000 NOAA/U of M: Develop Predictive Models for Improving Coastal and Human Health & Beach Forecasting (PI).
\$568,449 Observatory for Ecosystem Changes in Muskegon Lake AOC (Co-PI)
- 2009 **\$40,000** Michigan Department of Environmental Quality. Ruddiman Creek and Deer Creek TMDL Monitoring for *E. Coli*. (PI)
\$15,000 Muskegon and District 10 Health Departments for Beach Monitoring. (PI)
\$66,000 Michigan Department of Environmental Quality. Assessment of Cyanobacteria Toxins and their Potential for Release by Algicide Application in Muskegon County Lakes. (Co-PI)
\$53,000 Michigan Department of Environmental Quality. Assessment of Benthic Invertebrate Populations in the White Lake Area of Concern. (PI)
- 2008 **\$18,000** Lake Superior State University. Fish Tissue Analyses for PCBs. (PI)
\$18,800 Little River Band of Ottawa Indians. Fish Contaminant Analysis and the Development of a GIS Database. (PI)
\$20,000 Muskegon and District 10 Health Departments for Beach Monitoring. (PI)
- 2007 **\$68,000** Michigan Department of Environmental Quality. The Role of *Cladophora* in Sequestering *E. coli* and microcystins. (PI)
\$348,000 US Department of Transportation. A Study of Surface Run-off from US 31/Seaway on Little Black Creek, Muskegon County (Co-PI)
\$40,000 University of Michigan 2007. Analysis of Fish Tissue to Determine Changes in Contaminant Burdens before and After Remediation in the Saginaw River. (Co PI)
\$18,000 Muskegon and District 10 Health Departments Beach Monitoring. (PI)
\$8,000 Weston Solutions. Division Street Outfall Sediment Characterization. (PI)

- 2006 **\$98,000** Michigan Department of Environmental Quality. Assessment of Persistent Bioaccumulative Toxic Chemicals in Michigan Fish from Several Trophic Levels. (PI)
- \$68,000** Michigan Department of Environmental Quality. Assessment of Benthic Invertebrate Populations in the Muskegon Lake Area of Concern (PI)
- \$97,000** National Oceanic and Atmospheric Administration. Factors Affecting Microcystin Production and Cell Quota. (Co PI)
- \$61,000** USEPA Region V. Bear Lake Water Quality Investigation for TMDL Development. (PI)
- \$57,851** Michigan Department of Environmental Quality. Development of chemical management programs for Michigan High Schools. (Co-PI).
- \$16,000** Muskegon and District 10 Health Departments Beach Monitoring. (PI)

Recent Conference Presentations (Since 2007):

- Rediske, R.** 2013. Polybrominated diphenylethers: from your couch to your dinner table in three easy steps. Michigan Green Chemistry and Engineering Conference. Grand Rapids, MI.
- Rediske, R.** 2013. Delisting beneficial use impairments in the White Lake Area of Concern. 56th Annual International Association for Great Lakes Research Conference West Lafayette, IN.
- Rediske, R.,** P. Wampler, and A. Molla. 2013. A survey of household water quality in rural Haiti. Geological Society of Americas Conference. San Juan, Puerto Rico.
- Molla, A., **R. Rediske,** and P. Wampler. 2013. Water and sanitation in Haiti – an ethnographic perspective. Geological Society of Americas Conference. San Juan, Puerto Rico.
- Wampler, P., A. Molla and **R. Rediske.** 2013. Karst vulnerability and water quality in Haiti. Geological Society of Americas Conference. San Juan, Puerto Rico.
- Madenjian, C., **Rediske, R.,** O'Keefe, J, 2012. Tenth International Congress on the Biology of Fish, Madison, WI, "Sexual difference in PCB concentrations of burbot from Lake Erie",
- Janetski, D., Chaloner, D., Moerke, A., **Rediske, R.,** O'Keefe, J., Lamberti, G. 2012. Pacific salmon introductions in the North American Great Lakes: Effects on spawning streams. International Conference on the Ecology and Conservation of Freshwater Fish, Villa Nova de Cerveira, Portugal.
- Rediske, R.R.,** L.Q. Xie, J.P. O'Keefe, J.A.Dyble-Bressie, and J.M. Hagar. 2011. The influence of environmental conditions and hydrologic connectivity on cyanobacteria assemblages. 54th Annual International Association for Great Lakes Research Conference. Duluth, MN.
- Tromp, E.A., **R.R. Rediske,** and J.P. O'Keefe. 2011. PBDEs in Lake Huron Fish. 54th Annual International Association for Great Lakes Research Conference. Duluth, MN.
- Rediske, R.** 2010. Should Term Limits be Applied to Analytical Detection. Michigan Water and Environment Association Annual Meeting. Lansing, MI.
- R. Rediske,** and J. O'Keefe. 2010. Assessment of PCBs and PBDEs in Fish from Several Trophic Levels in Western Michigan Drowned River Mouth Lakes. 53rd annual International Association for Great Lakes Research Conference. Toronto, Canada
- Janetski*, D.T. Chaloner, A.H. Moerke, **R.R. Rediske,** J.P. O'Keefe, and G.A. Lamberti. Pollutant transport by introduced Pacific salmon to Great Lakes tributaries. 140th Annual Meeting of the American Fisheries Society. Pittsburgh, PA.

- Potter, A.*, **R. Rediske**, and J. O'Keefe. 2010. PCB and PBDE in Lake Michigan Whitefish. Michigan Academy of Science Annual Meeting. Calvin College. Grand Rapids, MI.
- Scull, B., **R. Rediske**, and K. Thompson. 2010. Integrated nutrient assessment of Bear Lake, Michigan. Michigan Academy of Science Annual Meeting. Calvin College. Grand Rapids, MI.
- Tromp, E.*, **R. Rediske**, and J. O'Keefe. 2010. PBDEs in the Lake Huron fish. Michigan Academy of Science Annual Meeting. Calvin College. Grand Rapids, MI.
- Tromp, E.*, **R. Rediske**, and J. O'Keefe. 2010. PBDEs in the Lake Huron Food Web. 53rd annual International Association for Great Lakes Research Conference. Toronto, Canada.
- Rediske, R.** 2009. Cyanobacteria and their toxins: new problems from old organisms. Water Safety and Toxicology for the Great Lakes Region. Michigan Society of Toxicology. Lansing, MI.
- Rediske, R.** 2009. The Detection Limit Blues. Michigan Water and Environment Association Annual Meeting. Boyne Mountain, MI.
- Rediske, R.** and J. Rediske**. 2009. The Role of *Cladophora* and *Spirogyra* Mats in the Sequestration of *E. coli* and Microcystin in Saginaw Bay and Grand Traverse Bay. International Association for Great Lakes Research. 52nd Annual Conference. University of Toledo. Toledo, OH.
- Jude, D, R. **R. Rediske**, J. O'Keefe, S. Hensler, and J. Giesy. 2009. PCBs Concentrations in Saginaw River Walleyes and Their Prey: 1990 vs. 2007. International Association for Great Lakes Research. 52nd Annual Conference. University of Toledo. Toledo, OH.
- Rediske, R.** *E. coli* accumulation in detached *Cladophora*: Implications for beach monitoring and management. Michigan Public Health Association Annual Conference. Traverse City, MI
- Sura*, S.A., D.J. Janetski*, D.T. Chaloner, A.H. Moerke, **R.R. Rediske**, J.P. O'Keefe, and G.A. Lamberti. 2009. Uptake of contaminants derived from Pacific salmon by resident fish in Pine Creek, Michigan. Michigan Chapter of the American Fisheries Society annual meeting, Grayling, MI.
- Rediske R.** and J. O'Keefe. 2008. Polybrominated Diphenylethers in Fish from Multiple Trophic Levels in Lake Huron. Lake Huron Binational Partnership Meeting. Hessel, MI.
- Rediske R.**, J. Hagar*, J. O'Keefe, Y. Hong, and J. Westrick. 2008. Cyanotoxins in Recreational Waters of West Michigan. Emerging Aspects on Harmful Algal Blooms and their Effects on Drinking Water Quality Symposium. USEPA, Office of Research and Development, Cincinnati Ohio 45268
- Rediske R.**, J. Hagar*, J. O'Keefe, Y. Hong, and J. Dyble. 2008. *Cylindrospermopsis raciborskii* in West Michigan Drowned River Mouth Lakes. International Association for Great Lakes Research. 51st Annual Conference. Trent University. Trent University. Peterborough, Ontario, Canada.
- Rediske, R.**, A. Steinman, X. Chu, K. Thompson, and B. Scull. 2008. Integrated Nutrient Assessment of Bear Lake, Michigan. International Association for Great Lakes Research. 51st Annual Conference. Trent University. Trent University. Peterborough, Ontario, Canada.

- Hagar*, J., **R. Rediske**, J. O'Keefe, and Y. Hong. 2008. . Detection and Quantification of Cyanobacteria and Microcystin in Recreational Waters of Two West Michigan Lakes: Muskegon Lake and Bear Lake Using Three Different Methodologies. International Association for Great Lakes Research. 51st Annual Conference. Trent University. Trent University. Peterborough, Ontario, Canada.
- Rediske, R.** 2008. PCB Detection Limits: Science or Science Fiction. Michigan Environmental Laboratory Association Annual Meeting. Lansing, MI.
- Rediske R.**, J. Hagar*, J. O'Keefe, and Y. Hong. 2007. Assessment of Cyanobacteria and Associated Toxins in Recreational Waters of West Michigan. International Association for Great Lakes Research. 50th Annual Conference. Penn. State University, Pennsylvania.
- Hagar*, J., **R. Rediske**, O'Keefe, and Y. Hong. 2007. Measurement of cyanotoxins in Bear Lake and Muskegon Lake, Michigan. International Association for Great Lakes Research. 50th Annual Conference. Penn. State University, Pennsylvania.
- Hong, Y., J. Hagar*, and **R. Rediske** 2007. Spatial and Temporal Variability of Cyanobacteria Assemblages in Drowned River Mouth Tributaries of Lake Michigan. International Association for Great Lakes Research. 50th Annual Conference. Penn. State University, Pennsylvania.
- Rediske R.** 2007. Assessment of Cyanobacteria and Associated Toxins in Recreational Waters of West Michigan. Lake Michigan State of the Lake System. 5th Biennial Conference Traverse City, MI
- Rediske, R.** 2007. Development of Delisting Targets for the Muskegon Lake Area of Concern. Lake Michigan State of the Lake System. 5th Biennial Conference Traverse City, MI
- Hagar*, J. and **R. Rediske**. 2007. Detection and Quantification of Cyanobacteria and Microcystin in Recreational Waters of Two West Michigan Lakes: Muskegon Lake and Bear Lake. Lake Michigan State of the Lake System. 5th Biennial Conference Traverse City, MI
- Cooper, M., D. Uzarski, **R. Rediske**, and T. Burton. 2007. Macroinvertebrate and Fish Community Composition in Relation to Sediment Contamination in a Lake Michigan Tributary System. State of Lake Michigan Conference. Traverse City, MI.
- * Graduate Student. **Undergraduate Student